

The Farmington Times

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FARMINGTON, MO., SEPTEMBER 16, 1909.

Governor Hadley has appointed explorers of the north seas and the following named gentlemen as delegates from this congressional district to the Waterway Convention to be held in New Orleans October 30th to November 3d: Hon. Edward A. Rozier of Farmington, Congressman Polite Elvins of Elvins, former State Auditor W. W. Wilder of Ste. Genevieve, former Congressman M. E. Rhodes of Potosi and Hon. John H. Reppy of DeSoto.

In the local option election at Fredericktown last Saturday, that town concluded by a decisive majority, 448 to 158, to remain dry. The town has been dry for four years, and the vote concluded they would petition for another election and try to get back to old conditions, but the people being so well satisfied with the working of the local option law were in no mood to make any change. No election was held throughout the county, which went dry four years ago, and so remains under local option regulations.

President Taft has started on his 13,000 miles of travel through the South and West, for which Congress voted him the munificent sum of \$25,000 to defray his traveling expenses. He has promised to visit every State during his administration, and on his present itinerary expects to cover about three-fourths of them. He will do a good deal of speech making, delivering his first at Boston last Tuesday night, in which he defended the central national bank system, and declared that the passage of a tariff bill had removed a disturbing element from business. He may not be so sure of this if he gets in close touch with western sentiment on the upward revision of the tariff, and will learn that the tariff promises to be a very disturbing factor in the next campaign. As to the central bank system, he will find the feeling of the people to be that the money power of the country is already too strongly entrenched. But he will be surrounded at all times by his court retainers and flatterers, while the populace will give due honor and courtesy to the dignity of his great office.

COOK AND PEARY.

The reported discovery of the north pole by two eminent explorers, Dr. Cook and Commander Peary, coming within a week of each other, with the dates of discovery a year apart, has started a bitter controversy between the partisans of the two eminent men, involving questions of veracity, distrust and unseemly jealousy that is anything but creditable. If this were confined to the partisans of the two men, it would not be so bad, but Dr. Cook was the first to report his discovery, and when a few days later Commander Peary showed up from the frozen region, declaring that he had accomplished the long sought feat of standing on the exact northern axis of the earth, and found that prior claim had been made, he could not contain himself until the evidence and records kept by each were scrutinized by competent scientists to determine their correctness, but hooted the claim of Dr. Cook, and declared that the latter "had given the public a gold brick." Dr. Cook, on the contrary, when Commander Peary's report first reached the public, declared his belief in the claim and expressed his gratification at the success attained by the Peary expedition.

Commander Peary gives out that he has proof that Dr. Cook's claim is a fake, but many eminent

explorers of the north seas and scientists believe the story and the partial evidence which Dr. Cook has given them. If his story is not true it will all come out in the final examination and investigation of the evidence which he says he has kept to submit to the scientific societies. Why should Commander Peary be so hasty in attempting to discredit his rival? His choleric attitude toward Dr. Cook and too apparent jealousy and chagrin that another should have reached the coveted goal and announced the fact before he did, places him at a disadvantage in the eyes of all unprejudiced minds, when compared with the confident, dignified and manly attitude of Dr. Cook toward Commander Peary and his own critics.

If Dr. Cook's claims are impossible, in the estimation of Commander Peary, may the world not be justified in the conclusion that his own claims are just as impossible? Has the world any more evidence at this time of the truthfulness of his claim than it has of the verity of Dr. Cook's? May not the final investigation and summing up of the records kept by each show that the claims of both are good, and may it not show that both are wrong? As it stands at present, a discerning public is disposed to believe that both men succeeded, and that whether both or one did, to America belongs whatever honor is due the achievement. Let judgment be held in abeyance until the question is finally decided by men of science who are capable of determining the claims of each. There is nothing to be gained by this unseemly feud between the partisans of the two men, nor in Commander Peary's ungenerous assault on Dr. Cook's honor and veracity.

GOVERNOR JOHNSON IS THOUGHT TO BE DYING.

Rochester, Minn., Sept. 15.—Governor Johnson is believed to be dying at St. Mary's Hospital, where he was operated on today for a deep intestinal abscess.

Doctor C. F. McNavin, house physician at the hospital to-night gave out the following statement: "Governor Johnson's condition is very bad. Pulse irregular and bad. Temperature subnormal."

Governor Johnson, after nearly three hours on the operating table to-day, was believed to be doing well, and a rapid recovery was expected until about 9 o'clock to-night when he suffered a relapse.

Mrs. Johnson accompanied him to the hospital and was with him until the operation began. After it was over she was allowed to see him in his room.

He was operated on in St. Mary's Hospital. Doctor by William J. Mayo, assisted by Doctor Charles Mayo.

It was a difficult and serious operation, according to the surgeons who witnessed the work, and Governor Johnson's condition is regarded to-night as precarious.

Governor Johnson was upon the operating table for two hours and fifty-three minutes, and at noon, as soon as he had recovered from the effects of the anesthetic, his first words were for Mrs. Johnson, who came to his bedside when she heard that her husband was conscious.

Later in the day Mrs. Johnson, coming from the Governor's room, said he was resting as comfortably as could be expected and that she confidently hoped for his speedy recovery.

Doctor William Mayo refused to make any personal statement until after the Governor's repulse to-night.

Leon J. Kerst, a prominent merchant of Ste. Genevieve, was found dead in his room on the 3d. It is supposed he died of heart disease. He was a native of Ste. Genevieve and was 64 years old.

A Madison county farmer has cut his third crop of alfalfa and the fourth one is growing, and if the weather continues fine, that also

GRANITE HILLS FURNISH LEAD FOR ST. FRANCOIS COUNTY ORE

Process Begun 54,000,000 Years Ago Still Continues—Several Oceans, a Coal Field, and Other Unusual Factors Made Possible the Only Extensive Disseminated Deposits in the World.—Vast Quantities of Zinc Have Disappeared From District.

ARE THERE OTHER MINERAL BODIES BELOW THE SANDSTONE?

[Editor's Note.—It is a long stretch to go back 54,000,000 years to find the beginning of the St. Francois County lead deposits, but that is when they began, according to the geologists, and in the following article the geological formations, and the genesis of the lead ores, are described in language as popular as is possible in handling such a technical matter. The very interesting question as to the disappearance of vast quantities of zinc, and the additional question as to whether or not there are ore bodies far deeper than any thus far mined in the Flat River country, are raised, but as yet there have been no satisfactory answers to these questions. Attention is called to the fact that the St. Francois Mountains, lying to the west and south of Flat River, probably are the oldest bits of land surface in the United States.]

II.
Just about fifty-four million years ago, accepting the estimates of the geologists at their face value, St. Francois county first came into possession of the lead which is now being recovered from the disseminated deposits at the rate of approximately \$10,000,000 yearly.

The igneous rocks, which are still on hand in the red granite and porphyry of the St. Francois Mountains, were bubbling and stewing from the lowest depths of the earth at that time, 54,000,000 years ago. And somewhere from below came the lead and the zinc, which to-day are present in small quantities in every speck of granite and every bit of porphyry.

Finally these igneous rocks solidified, forming the St. Francois Mountains, which at that time rose 1,500 or 2,000 feet above the rest of the country. And these mountains probably are the oldest in the United States. At least their peaks are the oldest land area in the United States, having escaped the inundations which afterward swept over practically all the Western Hemisphere.

In the granites and porphyries of these mountains there existed at that time the lead now found disseminated in the limestone of the Flat River district. The granite probably contained an average of 0.00219 per cent of lead and 0.0021 per cent of zinc, and the rhyolite, or porphyry, 0.00502 per cent of lead and 0.01765 per cent of zinc. These are the percentages shown by analyses of these rocks.

Stated briefly, large quantities of the granite and porphyry were decomposed and eroded during the 15,000,000 years of the pre-Cambrian period, and the lead was held in solution in the Cambrian ocean. Afterward, the lead in solution was concentrated in cracks and crevices, some of it deposited and again taken up by other waters which followed these early oceans.

Lead in the Granite:

According to Buckley, one square mile of granite, 1,400 feet thick, would yield 68,000 tons of lead. Just how many square miles of granite were eroded during pre-Cambrian times the geologists do not know, but they are very certain that about one-half the lead obtained from the granite was carried away from this immediate district and dissipated in other oceans, while the other half remained to be concentrated, deposited, dissolved again, and again concentrated, deposited and dissolved until conditions became right for its final deposition in the Bonne Terre limestone, where to-day it still is being deposited by the underground waters, and the process will continue indefinitely.

After the Cambrian ocean had eroded about two-thirds of the area of the St. Francois Mountains and had practically disappeared, leaving in the valleys between the granite mountains a deposit of sand which is now recognizable as the LaMotte sandstone and in which the drill men "bottom" all drill holes, and on top of this deposit of dolomite, or limestone, and shale, in the cracks and crevices of which were left large quantities of galena, there were several inundations by ocean waters, and during all this long period of time the lead, held in solution by the water, was being concentrated.

It was during the Pennsylvanian period, when the Pennsylvanian sea, bearing large quantities of organic matter, swept in covering the greater portion of Southeast Missouri, that the conditions favorable to the permanent deposit of the lead were established. It required the presence of organic matter to accomplish the precipitation of the lead, and it is because of the requirement of such conditions that the areas of disseminated lead deposits are so limited in Southeast Missouri.

When the lead-burdened ground

waters of the granite hills and the lead-carrying waters flowing back and forth through the LaMotte sandstone, and issuing as springs, came into contact with the arms of the Pennsylvanian sea, chemical changes took place which brought about the lead deposits being worked to-day. The heavier solutions of lead had congregated in the LaMotte sandstone and being forced by hydrostatic pressure into the lower portions of the Bonne Terre limestone, which lies just above the sandstone, the lead was deposited.

Lead Being Deposited Now.

This process is continuing today. The waters from the LaMotte sandstone show the presence of lead in almost the same percentages in which it is present in the granites and porphyries. Wherever the conditions are right, and particularly where the limestone contains organic matter, as is shown by its darker character, the lead held in the waters of the sandstone is precipitated as very small particles of galena, and thus the disseminated deposits are formed.

In this process, continued through a period of 54,000,000 years, the chief deposits taking place probably about 10,000,000 years ago, we see many causes combining, and it probably was because of these numerous and peculiar combinations of causes that there was created in the Flat River district practically the only disseminated lead ore body in the world. Similar geological circumstances did not exist at other points on the earth's surface.

Summed up, it may be said that three or four oceans, the granite hills known as the St. Francois Mountains, and the coal fields of Southern Illinois were the determining factors in the disseminated deposits of the Flat River district. The Illinois coal fields furnished a greater part of the organic matter which was necessary to the precipitation and deposit of the lead from the waters holding it in solution.

Hard Problem for Geologists.

The origin of the disseminated lead deposits has long been a problem with geologists. Gradually, all of them have practically accepted the theory of Arthur Winslow, which has been expanded to some extent above by the addition of factors discovered by Dr. Buckley. In a discussion of the Flat River district, Mr. Winslow has this to say:

"One of the principal determining causes, (of the disseminated deposits) we think, was the original open structure or texture of part of the rock. This is often observable now, and especially characterizes ore-bearing strata. Second, a prevalence of organic matter in certain strata or along certain horizons, as indicated by a darker color now often seen, had doubtless influence. Further, the various shale beds probably limited and guided the solutions."

"Numerous vertical crevices furnished channels for the flow of the solutions. The sheets of galena frequently found in these crevices prove that the solutions followed them. These were sufficient to supply the ore of higher-lying disseminated bodies. The contraction and disappearance of the crevices with depth, make them inadequate for the deep deposits such as prevail along Flat River."

"For these ores we are inclined to refer to the underlying sandstone, which is in close proximity, as the solution carrier. This is saturated with water, much of which flows directly from the decomposing crystalline (granite) rocks. The sandstone itself contains particles and fragments of these rocks, which must hold more or less of the metals."

"A downward flow of water toward Flat River and Bonne Terre is induced by reason of the slope of the Archean (granite) floor, and also by the Farmington anticline to the east. The water is thus under pressure sufficient for it to rise up



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through the limestone and where suitable physical and chemical conditions are reached the deposition of the ore will take place.

"We are inclined to think that the formation of the ore is still in progress; the finding of galena on calcite crystals is evidence of this. In the Southeast, as elsewhere, however, the Coal Measure epoch furnished probably the most favorable conditions. Decomposing organic matter was doubtless introduced into the rocks through solutions. The proximity of the Illinois coal fields probably had also a localizing influence."

What Became of the Zinc?

These are the opinions of the experts. They fall only in one respect. They do not account for the disappearance of the zinc, which is present in the granite in greater quantities than is the lead. Somewhere St. Francois county has a vast quantity of zinc which belongs to it by reason of prior ownership 54,000,000 years ago. Where it is the geologists do not know, but they offer explanations.

Probably, thinks Dr. Buckley, the igneous rocks did not contain as large percentages of zinc as the analyses show, but this explanation is cast aside, since to question the correctness of the analyses would tend to break down the entire theory.

The general belief is that the zinc has either been transported outside the area by water or has been carried to great depths and there deposited. "This," says Dr. Buckley, "naturally opens a question as to whether or not there may be ore bodies in some as yet unexplored formation underlying the Bonne Terre limestone. This question is not settled and further investigation will be required to determine it conclusively."

Probably it will be a long time before efforts are made to locate deeper ore bodies in the Flat River district. There is no evidence from practical sources that such ore bodies exist. Diamond drill holes have been sunk through the sandstone and into the granite, and if there is an ore bearing formation below the sandstone, it has never been located.

There is considerable zinc in the Leadwood section, particularly in Mine No. 4 of the Desloge Company, and in Mines Nos. 12 and 14 of the St. Joe Company, known as the Hoffman.

Silver and Other Metals.

In addition to lead and zinc, other metals are found in appreciable quantities in the Flat River district. More or less copper is associated with all the lead ores, but it is very rarely saved. The St. Joe Lead Company has at times recovered nickel and cobalt, shipping the matte to Swansea, Wales, for refinement. Silver is found in practically all the ore of the Flat River district, about \$25,000 worth of this metal be-

ing recovered annually. The average for the district is about one ounce of silver to the ton of lead concentrates.

The Doe Run Company has analyzed ore which ran as high as 2,065 ounces of silver to the ton of concentrates, and the Federal Lead Company 1,976 ounces per ton of concentrates.

The copper percentage is 0.30 per cent in the concentrates, the lead average for the district being 5.75 per cent in the crude ore, and 65.85 per cent in the concentrates.

(To be continued.)

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